2. Square footage of the Mechanical Room is not accounted for in final square footage of the house.
3. Finished square footage calculations for this house were made based on plan dimensions only and may vary from the finished square footage of the house as built.
4. Finished area: 843 square feet.

Area Schedule (Rentable)

<table>
<thead>
<tr>
<th>Area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living Room</td>
<td>210 SF</td>
</tr>
<tr>
<td>Bathroom</td>
<td>300 SF</td>
</tr>
<tr>
<td>Bedroom</td>
<td>505 SF</td>
</tr>
<tr>
<td>Hall</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>621 SF</td>
</tr>
<tr>
<td>Kitchen</td>
<td>843 SF</td>
</tr>
</tbody>
</table>

GENERAL SHEET NOTES

2. Square footage of the Mechanical Room is not accounted for in final square footage of the house.
3. Finished square footage calculations for this house were made based on plan dimensions only and may vary from the finished square footage of the house as built.
4. Finished area: 843 square feet.
FIRE EXTINGUISHERS LOCATED IN KITCHEN CABINET AND MECHANICAL ROOM. EXACT LOCATION TO BE DETERMINED ON SITE.
4. All landings are compliant with ICC A117.1-2003 requirements.
5. All exterior and interior doors and thresholds are compliant with ICC A117.1-2003 requirements.
6. Route doors will remain locked in open position during public exhibit.
GENERAL SHEET NOTES

1. **ALL ELEVATIONS INDICATE HEIGHT ABOVE OR BELOW FINISHED FLOOR ELEVATION**

---

**A2** 
EAST - SOLAR ENVELOPE COMPLIANCE ELEVATION

**C1** 
NORTH - SOLAR ENVELOPE COMPLIANCE ELEVATION

---

**FINISH FLOOR**

**GRADE**

---

**1/4" = 1'-0"**

---

**FINISH FLOOR**

**GRADE**
GENERAL SHEET NOTES

1. ALL ELEVATIONS INDICATE HEIGHT ABOVE OR BELOW FINISHED FLOOR ELEVATION.

SOUTH - SOLAR ENVELOPE COMPLIANCE ELEVATION

WEST - SOLAR ENVELOPE COMPLIANCE ELEVATION

[Diagram with elevations and notes]
**DESIGN NOTES**

### COLD-FORMED STEEL FRAMING NOTES

1. **Cold-Formed Steel Design and Construction** shall be in accordance with the American Iron and Steel Institute (AISI) "Code of Standard Practice for Steel Buildings and Bridges" dated March 18, 2005 (303-05).

2. All cold-formed steel shall be galvanized in accordance with ASTM A924.

3. All cold-formed steel shall be in accordance with the North American Specification for Structural Steel Buildings, 360-05.


5. All cold-formed steel shall be fabricated in accordance with the American Iron and Steel Institute (AISI) "Standard for Design of Cold-Formed Steel Structural Members", 2007 Edition.

6. **Design Notes (Continued)**

7. All design and construction of cold-formed steel framing shall be in accordance with the American Iron and Steel Institute (AISI) "Special Design Provisions for Wind and Seismic", 2007 Edition (AISI-SEPD-07).

8. All design and construction of cold-formed steel framing shall be in accordance with the American Iron and Steel Institute (AISI) "Special Design Provisions for Wood Construction, 2003 Edition (AISI/AF&PA-0309).

9. All design and construction of cold-formed steel framing shall be in accordance with the American Iron and Steel Institute (AISI) "Special Design Provisions for Wood Construction, 2003 Edition (AISI/AF&PA-0309).

10. **Design Wind Pressure for Wall Components (PSF)**

**1.00**

**Notes:**

1. Positive and negative side wind pressures shall be taken to and away from the surfaces, respectively.

2. Building zones are defined in ASCE 7.

### COLD-FORMED STEEL FRAMING NOTES

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**1.00**

**Notes:**

1. Positive and negative side wind pressures shall be taken to and away from the surfaces, respectively.

2. Building zones are defined in ASCE 7.

### DESIGN NOTES

1. **General Notes**

   1. Use structural drawings in conjunction with all other drawings. Coordinate the work of structural, mechanical, electrical, and plumbing engineers. Provide all other drawings required for design and construction.

   2. Elevations on the structural drawings are indicated as PSF (pounds per square foot) referenced to the finished first floor elevation datum (0'000).

   3. Report dimensions in dimensions between different drawings to the owner's representative prior to beginning work in areas that will be affected.

   4. Details are discussed in the form of "typical," "applicable," or "with reference to." Details are also given where the nature of the construction requires their use. Determine applicability of typical details by descriptive titles or from the similarity of construction to other construction where the detail is specifically indicated or referenced.

   5. The first column, noting "typical," "applicable," or "with reference to," indicates on all temporary bracing and bracing required to direct and hold the structure in proper alignment at all structural work, including connection details. The analysis, design, safety, and construction of temporary bracing, and other temporary supports are the sole responsibility of the contractor.

   6. Connection means, methods, techniques, and sequences and supervision of the work are the sole responsibility of the contractor.

   7. Reproduction of contract drawings shall not be used as shop drawings under any circumstances.

2. **Design Notes**

   1. **Structural Design** is in accordance with the following codes and specifications:

      - A. 2009 Virginia Uniform Statewide Building Code (VUSBC), Effective March 1, 2011

      - B. ASCE 7-05, Minimum Design Loads for Buildings and Other Structures

      - C. AISC "Specification for Structural Steel Buildings" Dated March 9, 2005 (360-05)

      - D. AISC "Code of Standard Practice for Steel Buildings and Bridges" Dated March 18, 2005 (303-05)

      - E. ASCE 7-05, Minimum Design Loads for Buildings and Other Structures

      - F. AISI "Specification for Structural Steel Buildings" Dated March 9, 2005 (360-05)


   2. **Design Load Criteria:**

      - A. Live Loads (Uniform)

         - Roof: 30 PSF
         - Interior Living Areas: 10 PSF
         - Exterior Living Areas: 10 PSF
         - Flat Roof: 10 PSF

         **Note:** Live load reduction was not used in the design of this structure.

      - B. Snow Load

         - Ground Snow Load 2 (PSF)
         - Snow Exposure Factor, C: 0.6
         - Thermal Factor, C1: 0.7
         - Snow Depth Importance Factor, I: 1.0
         - Flat Roof Snow Load: 10 PSF

      - C. Wind Loads

         - Design Wind Speed: 70 MPH
         - Occurrence Category: 4
         - Wind Zone Importance Factor, I: 4.0
         - Wind Speed Exposure Category: 1.0
         - Gust Exponent, G: 0.8
         - Maximum Lift and Parasite Drag Coefficients, C1, C2: 0.02

      - D. Connection Notes

         - Stud-to-Track: Securely into track

### DESIGN WIND PRESSURE FOR WOOD FRAMING (PSF)

**1.00**
ROUGH CARPENTRY NOTES

1. PROVIDE ROUGH FRAME MRNBS IN ACCORDANCE WITH PS2 "AMERICAN LIGHT WOOD LUMBER STANDARD" AND THE FOLLOWING REQUIREMENTS:
   A. MOISTURE CONTENT: 15 PERCENT MAXIMUM
   B. SPECIES: SOUTHERN PINE

2. PROVIDE CONSTRUCTION PANELS IN ACCORDANCE WITH PS1 "STRUCTURAL PLYWOOD" AND THE FOLLOWING REQUIREMENTS:
   A. SHEATHING AT SHEAR WALLS: 15/32" STRUCTURAL I
   B. FLOOR SHEATHING: 23/32" APA RATED SHEATHING
   C. ROOF SHEATHING: 7/16" STRUCTURAL I

3. ATTACH CONSTRUCTION PANELS TO FRAMING AS INDICATED BELOW:

4. USE PRESERVATIVE TREATED WOOD FRAMING MEMBERS FOR NAILER PLATES AND FIRST FLOOR JOISTS.

5. STEEL PLATE CONNECTORS SHALL COMPLY WITH ASTM A36 SPECIFICATIONS (Fy=36 KSI). BOLTS CONNECTING WOOD MEMBERS SHALL COMPLY WITH ASTM A307 COMMON STEEL BOLTS AND SHALL BE 3/4" DIAMETER UNLESS OTHERWISE NOTED.

6. METAL TRIMMING ANCHORS SHALL COMPLY WITH ASTM A325 STANDARD. ANCHORS SHALL BE CAPABLE OF SUPPORTING THE REACTIONS INDICATED.

STEEL NOTES


2. UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE ABOVE-LISTED AISC SPECIFICATION AND THE FOLLOWING:
   A. SQUARE AND RECTANGULAR HSS
   B. ROUND HSS
   C. WIDE FLANGE SHAPES AND TEES
   D. CHANNELS AND ANGLES
   E. PLATES AND ANGLES
   F. HIGH STRENGTH BOLTS
   G. ROUND BARS WITH THREADED ENDS

3. ALL BOLTED CONNECTIONS, UNLESS OTHERWISE NOTED, SHALL USE HIGH STRENGTH BOLTS WITH HARDENED THREADS AS REQUIRED FOR THE CONNECTION LOADS. BOLT HOLES SHALL BE CUT OR ENLARGED BY FLAME IN THE FIELD.

4. ALL BOLTED CONNECTIONS, UNLESS OTHERWISE NOTED, SHALL USE HIGH STRENGTH BOLTS WITH HARDENED CARBON STEEL ANCHORS AS REQUIRED FOR THE CONNECTION LOADS. BOLT HOLES SHALL NOT BE CUT OR ENLARGED BY FLAME.

5. FIELD CUTTING OF STRUCTURAL STEEL MEMBERS BY ANY TRADE SHALL NOT BE PERMITTED. BOLT HOLES SHALL NOT BE CUT OR ENLARGED BY FLAME CUTTING IN THE FIELD.

6. ALL FIELD BOLTED SHEAR CONNECTIONS SHALL BE TIGHT BEARING-TYPE CONNECTIONS. THREADS INCLUDED IN THE SHEAR PLANE.

7. ALL BOLTED SHEAR CONNECTIONS FOR BEAMS SUPPORTING FLOOR GRAVITY LOADS SHALL CONTAIN A MINIMUM NUMBER OF HIGH STRENGTH BOLTS AS FOLLOWS: THE MINIMUM BOLT DIAMETER IS 3/4".

8. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL DRAWINGS AND DESIGN CALCULATIONS FOR ANY ALTERNATE DETAILS AND MEMBER SPLICES.

9. SHOP PRINTED DETAILS OF STRUCTURAL STEEL MEMBERS ARE PROVIDED EXCEPT AS DETAILED ON THE DRAWINGS PERMITTED BY THE SPECIFICATIONS, AS INDICATED ON APPROVED SUBMITTALS, AND AS SPECIFICALLY APPROVED ON SHOP DRAWINGS PRIOR TO FABRICATION.
1. FLOOR SHEATHING SHALL BE 23/32" APA RATED SHEATHING FASTENED AT PANEL EDGES AND TO INTERMEDIATE FRAMING MEMBERS WITH 8D COMMON NAILS AT 6 INCHES ON CENTER. BLOCKING IS NOT REQUIRED AT PLYWOOD SHEET EDGES NOT SUPPORTED BY JOISTS OR NAILERS. MINIMUM NAIL PENETRATION INTO WOOD JOISTS AND NAILERS IS 1-3/8 INCHES.

2. SHEAR WALLS ARE IDENTIFIED BY SYMBOL AND INDICATED THUS ON PLAN:

3. THERMASTEEL WALL PANEL STUDS SHALL COMPLY WITH THE FOLLOWING: 43 MIL MINIMUM THICKNESS, 1-5/8 INCH MINIMUM FLANGE WIDTH, 3-1/2 INCH MINIMUM WEB DEPTH, AND A 3/8 INCH MINIMUM EDGE STIFFENER ON THE FLANGE.

4. FLAT STRAP BLOCKING SHALL BE PROVIDED AT ALL SHEAR WALL PANEL EDGES THAT DO NOT ALIGN WITH A WALL STUD. FLAT STRAP BLOCKING SHALL HAVE A MINIMUM THICKNESS OF 33 MILS AND SHALL HAVE A MINIMUM WIDTH OF 1-1/2 INCHES.

5. PROVIDE BOTTOM FLANGE BRACE FOR W10X30 BEAMS/GIRDERS 3'-0" ON EACH SIDE OF AN ADJUSTABLE-HEIGHT STEEL PIER WHERE THE W10 IS CONTINUOUS OVER THE PIER. SEE TYPICAL DETAILS ON SHEET S-303 FOR ADDITIONAL INFORMATION.

6. TYPICAL WOOD FLOOR JOIST HANGER SHALL BE SIMPSON STRONG-TIE MODEL NO. LB210 TOP FLANGE JOIST HANGER, UNLESS OTHERWISE NOTED, OR APPROVED EQUAL. MINIMUM HANGER CAPACITY = 800lb.
1. ROOF SHEATHING SHALL BE 7/16" STRUCTURAL I SHEATHING FASTENED TO COLD-FORMED STEEL JOISTS WITH #10 SELF-TAPPING SCREWS AT 6 INCHES ON CENTER. SCREWS (#10) WITHIN THE FIELD OF THE PANEL SHALL BE PROVIDED AT 12 INCHES ON CENTER.

2. FLAT STRAP BRIDGING ON THE TOP FLANGE OF COLD-FORMED STEEL JOISTS SHALL BE CONTINUOUS THROUGH MODULE JOINTS.

3. ALIGN COLD-FORMED ROOF JOISTS WITH WALL STUDS, TYP.

4. COLD-FORMED STEEL ROOF JOISTS ON WEST SIDE OF THE DIEM WALL SHALL BE 1200S200-97 MEMBERS SPACED AT 16" OC MAX.

5. COLD-FORMED STEEL ROOF JOISTS ON EAST SIDE OF THE DIEM WALL SHALL BE 1200S200-68 MEMBERS SPACED AT 16" OC MAX.

6. WALL PANEL MANUFACTURER SHALL PROVIDE HEADERS OVER DOOR AND WINDOW OPENINGS DESIGNED FOR THE FOLLOWING SERVICE-LEVEL LOADS: 550 PLF (DEAD + LIVE + WIND LOAD) AND 300 PLF (UPLIFT, WIND LOAD).


8. PROVIDE DOUBLE CFS ROOF JOISTS CENTERED BENEATH SOLAR PANEL LEG SUPPORTS.

9. WHERE DOUBLE CFS ROOF JOISTS ARE PROVIDED, FASTEN JOISTS TOGETHER WITH (3) ROWS OF #10 SCREWS AT 6" ON CENTER. ROW SPACING = 4", LOCATE FIRST ROW 2" BELOW JOIST.

10. PROVIDE SIMPSON STRONG-TIE MODEL NO HRS8 UPLIFT STRAP CONNECTOR AT EACH CFS ROOF JOIST BEARING LOCATION. FASTEN TO JOIST WEB AND WALL STUD PER THE MANUFACTURER'S REQUIREMENTS. MINIMUM UPLIFT CAPACITY=720lb (SERVICE LOAD).

11. PROVIDE 7/8", 54 MIL HAT CHANNELS AT 16" ON CENTER ON BOTH SIDES OF STEEL TRUSS LOCATED WITHIN THE DEIM WALL. FASTEN HAT CHANNELS TO TOP AND BOTTOM CHORDS OF TRUSS.

12. WALL FRAMING FOR THE DEIM WALL AND THE WALLS OF THE MECHANICAL ROOM SHALL BE 400S162-54 AT 16" ON CENTER, UNLESS OTHERWISE NOTED.
UNIRAC LEG ROOF PLACEMENT

A1
2X8X1'-0" FASTEN TO 2X10 WITH (6) 8d NAILS
PLYWOOD SHEATHING, SEE PLAN
2X10 FLOOR JOIST, SEE PLAN
W10 STEEL BEAM, SEE PLAN
1/4x2 1/2x0'-5" PLATE, TYP
L2 1/2x2 1/2x1/4, TYP
(2)3/4"Ø A325 BOLTS EACH SIDE OF SPLICE, TYP
5/16" SPLICE PLATES, EACH SIDE OF WEB, TYP
(2)1/2"Øx2 1/2" LAG SCREWS AT 3" OC
FLOOR JOISTS PARALLEL TO STEEL BEAM
8d NAILS AT 6" OC, TYP
3/16 TYP
3/8X4X0'-6" PLATE, TYP CENTERLINE DOUBLE CFS ROOF JOIST, TYP CENTERLINE PIPE POST AND DOUBLE CFS ROOF JOISTS CENTERLINE DOUBLE CFS ROOF JOISTS AT FIRE POST LOCATIONS, TYP. SEE PLANTED TO CFS ROOF BRIDGE SIDE TYPICAL BRIDGING DETAIL AT SOLAR PANEL LEG SUPPORT TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL 1 1/2"X33 MIL STRAP, CONT TOP AND BOTTOM AT SOLID BRIDGING 1200T200-54 SOLID BRIDGING, CONT AT EACH ROW OF PIPE POSTS AND AT 4'-0" OC MAX.
1 1/2"X33 MIL STRAP CONT TOP AND BOTTOM AT SOLID BRIDGING 1 1/2"X33 MIL STRAP, CONT TOP AND BOTTOM AT SOLID BRIDGING NOTE: SEE SECTION A3/S-302 FOR FLAT STRAPPING AND SOLID BRIDGING FASTENING REQUIREMENTS.
2X8X0'-9" FASTEN TO 2X10 WITH (6) 8d NAILS
PLYWOOD SHEATHING, SEE PLAN
2X10 FLOOR JOIST, SEE PLAN
W10 STEEL BEAM, SEE PLAN
1/4x2 1/2x0'-5" PLATE, TYP
L2 1/2x2 1/2x1/4, TYP
(2)1/2"Øx2 1/2" LAG SCREWS AT 3" OC
2"Ø STD PIPE, BY SOLAR PANEL MANUFACTURER DOUBLE CFS ROOF JOISTS AT PIPE POST LOCATIONS, TYP. SEE PLAN FOR CFS ROOF JOIST SIZE 1" = 1'-0" D6 TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL 1" = 1'-0" D6 TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL 1" = 1'-0" D6 TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL 1" = 1'-0" D6 TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL 1" = 1'-0" D6 TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL 1" = 1'-0" D6 TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL 1" = 1'-0" D6 TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL TYPICAL STEEL BEAM BOTTOM FLANGE BRACE TYPICAL BRIDGING DETAIL AT SOLAR PANEL LEG SUPPORT TYPICAL SOLAR PANEL LEG ANCHORAGE DETAIL TYPICAL STEEL BEAM BOTTOM FLANGE BRACE TYPICAL STEEL BEAM SPLICE CONNECTION GRAPHIC SCALE(S) 1" = 1'-0" 1 1/2" = 1'-0" 1/8" = 1'-0" 1/16" = 1'-0"
1. INSTALL CEILING QWB WITH LONG DIMENSION PERPENDICULAR TO METAL HAT CHANNEL.
1. Unvented attic insulation assembled with 2" of spray foam and 9 1/2" batt insulation to meet Table 1102.2.5, Common Wealth of Virginia 2009 Residential Code.
1. All opening dimensions are to the rough opening.

2. See sheet A-512 for head, jamb, and sill details at openings.

3. Unvented attic insulation assembled with 3" of spray foam on top of 9" of batt insulation. R-48 and R-290 wood filling strip installed in attic with 6 1/2" of fiberglass beyond. See Table 1102.2.5 Commonwealth of Virginia 2009 Residential Code.

4. Foundation system:
   - W10 Wide Flange
   - 2x10 joist
   - 5/8" Insulation
   - 9" Batt Insulation
   - 5/8" Radiant Floor Heating
   - 9/16" Plywood Flooring
   - Flashing
   - Fiberglass
   - 5 1/2" ThermaSteel Panel
   - 9" Batt Insulation
   - 3" Spray Foam Insulation
   - 5 1/2" ThermaSteel Panel
   - 9/16" Plywood Flooring
   - Flashing
   - Fiberglass
   - 5 1/2" ThermaSteel Panel
   - 9" Batt Insulation
   - 3" Spray Foam Insulation

5. Roofing:
   - Membrane
   - Flashing
   - Fiberglass
   - 6 1/2" Insulation
   - 5/8" Radiant Floor Heating
   - 9/16" Plywood Flooring
   - Flashing
   - Fiberglass
   - 6 1/2" Insulation
   - 5/8" Radiant Floor Heating
   - 9/16" Plywood Flooring

6. WALL SECTIONS:
   - A3: Wall Section - Entrance Door
   - A5: Wall Section - East Window
1. All opening dimensions are to the rough opening.
2. See sheet A-512 for head, jamb & sill details at openings.
1/2" X 1 3/4" WOOD JOINT

12" C CHANNEL

1 1/2" X 6" PLYBOO FLOORING

5/8" SUBFLOOR

SPRAY FOAM INSULATION

REVAL MOLDING

STEEL CONNECTION

7/8" LIGHT GAUGE METAL HAT CHANNEL

STEEL SUSPENSION HIRE

1 1/2" LIGHT GAUGE METAL CHANNEL

BATT INSULATION

GWB CEILING

5/8" EXT GRADE ROOF SHEATHING

MODULE BREAK

5/8" EXT GRADE ROOF SHEATHING

ROOFING

A3

FLOOR JOINT AT MODULES 1 & 2

1/2" X 1 3/4" WOOD JOINT

A3

FLOOR JOINT AT MODULES 1 & 2

9/16"X6"X9/16" FLOORING

RADIANT FLOOR HEATING

5/8" SUBFLOOR

CONNECTION PLATE

FOUNDATION SYSTEM

0

1'

1 1/2'

1/2"
**GENERAL SHEET NOTES**

1. Mechanical equipment and plumbing not related to the fire suppression have been removed for clarity. Refer to P-101 for complete plumbing plan.
2. The water for the fire suppression system will be contained in the water supply tank.
3. All fire suppression piping to be 3/4" diameter blue PEX piping unless otherwise specified.
4. All PEX piping shall be listed for fire protection and installed in accordance with the manufacturer's instructions.
5. Smoke detectors shall be installed with the manufacturer's instructions.
6. The circulator pump shall be installed with the manufacturer's instructions.
7. Sprinkler heads shall be installed with the manufacturer's instructions.
8. Smoke detectors are placed in specified places due to no doorway in Dem wall.
GENERAL SHEET NOTES

1. All ducting is to be 6" round unless otherwise specified.
2. All condensate lines to be 5/8" vinyl tubing.
3. All ductless mini split line sets to be sized and installed per manufacturer's instructions.
4. All mechanical equipment to be installed per manufacturer's instructions.
5. Dryer vent to be sized and installed by manufacturer's instructions.
6. Stove hood and exhaust to be sized and installed per manufacturer's instructions.

*PRODUCED BY AN AUTODESK STUDENT PRODUCT*
GENERAL SHEET NOTES

1. ALL DUCTING IS TO BE 6" ROUND UNLESS OTHERWISE SPECIFIED.
2. ALL DUCTLESS MINI SPLIT LINE SET TO BE SIZED PER MANUFACTURERS INSTRUCTIONS.
3. ALL MECHANICAL EQUIPMENT TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
4. MAIN WATER SUPPLY TO BE 3/4" BLUE PEX PIPE.
5. MAIN WATER SUPPLY TO BE 1 1/2" BLUE PEX PIPE.
6. ALL HOT WATER SUPPLY TO BE 3/4" RED PEX PIPE.
7. VIEW THE F-SHEETS FOR MORE DETAILED PLUMBING INFORMATION.
8. VIEW THE E-SHEETS FOR MORE DETAILED ELECTRICAL INFORMATION.
9. VENT CAPS WILL BE INSTALLED ON ANY DUCTING TO AND FROM OUTSIDE AND WILL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
GENERAL SHEET NOTES

1. ALL DUCTING IS TO BE 6" ROUND UNLESS OTHERWISE SPECIFIED.
2. ALL DUCTLESS LINE SETS TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
3. ALL MECHANICAL EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
4. DRYER VENT TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
5. STOVE HOOD AND EXHAUST TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

SECTION DETAIL - HVAC FROM SOUTH

DUCTED SUPPLY FROM BATHROOM

DUCTED EXHAUST TO LIVING ROOM

4" EXHAUST FROM DRYER

AHU-12

ERV

DUCTED EXHAUST TO FLEX SPACE

CONCENTRIC LINE

LINE SET

CONDENSATE LINE

AHU-9

LINE SET

CONDENSATE LINE

AHU-9

LINE SET

DUT
GENERAL SHEET NOTES

1. ALL DUCTING IS TO BE 6" ROUND UNLESS OTHERWISE SPECIFIED.
2. ALL CONDENSATE LINES TO BE 5/8" VINYL TUBING.
3. ALL DUCTLESS MINI-SPLIT LINE SETS TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
4. ALL MECHANICAL EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
5. DRYER VENT TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
6. STOVE HOOD AND EXHAUST TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

SECTION DETAIL - DIEM HVAC

- DUCTED EXHAUST TO LIVING ROOM
- DUCTED SUPPLY FROM BATHROOM
- DUCTED SUPPLY FROM OUTSIDE
- DUCT TEE TO LIVING ROOM
- DUCTED EXHAUST TO OUTSIDE
- Ducted exhaust to flex space

4" Diameter Duct Exhaust from Dryer

U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON 2013
WWW.SOLARDECATHLON.GOV
1. ALL DUCTING IS TO BE 6" ROUND UNLESS OTHERWISE SPECIFIED.
2. ALL DUCTLESS MINI SPLIT LINE SET TO BE SIZED PER MANUFACTURER'S INSTRUCTIONS.
3. ALL MECHANICAL EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
4. ALL WATER PIPING TO BE SIZED AND INSTALLED BASED ON MANUFACTURER'S INSTRUCTIONS.
5. MAIN WATER SUPPLY TO BE 3/4" BLUE PVC PIPE.
6. ALL HOT WATER SUPPLY TO BE 1/2" BLUE PEX PIPE, ALL HOT WATER SUPPLY TO BE 1/2" RED PEX PIPE.
7. VIEW THE P-SHEETS FOR MORE DETAILED PLUMBING INFORMATION.
8. VIEW THE E-SHEETS FOR MORE DETAILED ELECTRICAL INFORMATION.
9. VENT CAPS WILL BE INSTALLED ON ANY DUCTING TO AND FROM OUTSIDE AND WILL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

SECTION DETAIL - DIEM WALL MECHANICAL ROOM
GENERAL SHEET NOTES

1. ALL DUCTING IS TO BE 6" ROUND UNLESS OTHERWISE SPECIFIED.
2. ALL DUCTLESS MINI SPLIT LINE SET TO BE SIZED PER MANUFACTURER'S INSTRUCTIONS.
3. ALL MECHANICAL EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
4. ALL SOLAR WATER PIPING TO BE SIZED AND INSTALLED BASED ON MANUFACTURER'S INSTRUCTIONS.
5. MAIN WATER SUPPLY TO BE 3/4" BLUE PEX PIPE.
6. COLD WATER SUPPLY TO BE 1/2" BLUE PEX PIPE. ALL HOT WATER SUPPLY TO BE 1/2" RED PEX PIPE.
7. VEIW THE P-SHEETS FOR MORE DETAILED PLUMBING INFORMATION.
8. VIEW THE E-SHEETS FOR MORE DETAILED ELECTRICAL INFORMATION.
9. VENT CAPS WILL BE INSTALLED ON ANY DUCTING TO AND FROM OUTSIDE AND WILL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

MECHANICAL ROOM: EAST VIEW

- LIGHT AND FAN
- ERV
- INVERTERS
- MAXIMIZER MANAGEMENT UNIT
- FIRE EXTINGUISHER
- ORGANIZER ENCLOSURE
- MAIN SERVICE PANEL
- PCM TANK
- HOT WATER TANK
- BOSCH SBU
- EXPANSION TANK
- BOSCH KS PUMP STATION
- SOLAR WATER PIPING

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TEAM NAME: TEAM TIDEWATER VIRGINIA
ADDRESS: Hampton University Department of Architecture, Hampton, Virginia
OLD DOMINION UNIVERSITY SCHOOL OF ENGINEERING, Norfolk, Virginia
NORFOLK, VIRGINIA

2/14/2013

M-204
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**OUTLETING SCHEDULE**

- 6" drain line
- 4" drain line
- 2" drain line
- 1" drain line
- Aluminum vent cap
- Inner vent

**SCHEDULE**

- Sheet Title
- Lot Number
- Drawn By
- Checked By
- Copyright
- Client
- Team Name
- Address
- Contact

**CONSTRUCTION DOCUMENTS**

- None: Project is Public Domain

**U.S. DEPARTMENT OF ENERGY**

- Solar Decathlon 2013
- www.solardecathlon.gov

**MARK DATE DESCRIPTION**

- PRODUCED BY AN AUTODESK STUDENT PRODUCT

**DATE**

- 2/14/2013

**M-601**
GENERAL SHEET NOTES

1. ALL DUCTING IS TO BE 6" ROUND UNLESS OTHERWISE SPECIFIED.
2. ALL CONDENSATE LINES TO BE 5/8" VINYL TUBING.
3. ALL DUCTLESS MINI SPLIT LINE SETS TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
4. ALL MECHANICAL EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
5. DRYER VENT TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
6. STOVE HOOD AND EXHAUST TO BE SIZED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
GENERAL SHEET NOTES

1. ALL DUCTING IS TO BE 6" ROUND UNLESS OTHERWISE SPECIFIED.
2. ALL DUCTLESS MINI SPLIT LINE SET TO BE SIZED PER MANUFACTURER'S INSTRUCTIONS.
3. ALL MECHANICAL EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
4. SOLAR WATER PIPING TO BE SIZED AND INSTALLED BASED ON MANUFACTURER'S INSTRUCTIONS.
5. MAIN WATER SUPPLY TO BE 3/4" BLUE PEX PIPE.
6. AUXILIARY WATER SUPPLY TO BE 1/2" BLUE PEX PIPE. ALL HOT WATER SUPPLY TO BE 1/2" RED PEX PIPING.
7. VIEW THE P-SHEETS FOR MORE DETAILED PLUMBING INFORMATION.
8. VIEW THE E-SHEETS FOR MORE DETAILED ELECTRICAL INFORMATION.
9. VENT CAPS WILL BE INSTALLED ON ANY DUCTING TO AND FROM OUTSIDE AND WILL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

MECHANICAL ROOM ISOMETRIC - NORTHWEST VIEW

MECHANICAL ROOM ISOMETRIC - NORTHEAST VIEW
GENERAL SHEET NOTES

1. THE WATER FOR THE FIRE SUPPRESSION SYSTEM AND DOMESTIC WATER WILL BE CONTAINED IN THE SUPPLY WATER TANK.
2. 950 GALLONS ARE TO BE SUPPLIED TO THE SUPPLY WATER BLADDER.
3. 950 GALLONS ARE TO BE REMOVED FROM THE RETURN WATER BLADDER.
4. THE WATER SUPPLY BLADDER IS TO BE FILLED FROM BEGINNING TO END OF COMPETITION.
5. EACH BLADDER WILL HAVE REMOVABLE TOPS WITH A DIAMETER OF AT LEAST 6" AND AT LEAST 12" OF CLEARANCE ABOVE.
6. THE SUPPLY AND RETURN WATER BLADDER ARE TEMPORARY AND FOR COMPETITION PURPOSES ONLY.
7. THE WATER SUPPLY BLADDER WILL HAVE A HEIGHT OF 12".
8. THE WATER BLADDER FILL CAP WILL BE SUPPORTED BY HUMAN DURING FILL AND REMOVAL.
9. THE SUPPLY AND RETURN WATER BLADDER WILL HAVE AN HEIGHT OF 12".

WATER SUPPLY LINE

WASTE RETURN LINE

RETURN BLADDER

CIRCULATOR PUMP - GRUNDFOS ALPHA 15-55SF

PCM TANK

HOT WATER TANK

COLD WATER EXPANSION TANK

DOMESTIC WATER IS NOT TO BE SUPPLIED TO THE TOILET DURING THE COMPETITION.

ALL RETURN PIPE SLOPES MINIMUM OF 1/4 IN/FT 2012 IRC.

ALL RETURN PIPE TO BE 3" DIAMETER PVC PIPING UNLESS OTHERWISE SPECIFIED.
1. The water for the fire suppression system and the supply water will be contained in the supply water tank.
2. 950 gallons are to be supplied to the supply water bladder.
3. The water supply bladder is to be filled from beginning to end of competition.
4. The water bladder fill cap will be supported by a man during fill and removed.
5. Remove the tank in a manner to be derivable tops with a diameter of at least 7' and at least 1/2" of clearance above.
6. The supply and return water bladder are temporary and for competition purposes only.
7. The supply and return bladder will have a height of 12".
8. The hot water tank and the phase change material tank will be installed based on manufacturer's instructions.
9. The circulating pump will be installed based on manufacturer's instructions.
10. Main water supply to be 3/4" blue PEX pipe.
11. All cold water supply to be 1/2" blue PEX piping. All hot water supply to be 1/2" red PEX piping.
12. Domestic water is not to be supplied to the toilet during the competition.
1. 500 GALLONS ARE TO BE REMOVED FROM THE RETURN WATER BLADDER.
2. EACH BLADDER WILL HAVE REMOVABLE TOPS WITH A DIAMETER OF AT LEAST 4" AND AT LEAST 12" OF CLEARANCE ABOVE.
3. THE WATER BLADDER FILL CAP WILL BE SUPPORTED BY HUMAN DURING FILL AND REMOVAL.
4. THE SUPPLY AND RETURN WATER BLADDER ARE TEMPORARY AND FOR COMPETITION PURPOSES ONLY.
5. THE SUPPLY AND RETURN BLADDER WILL HAVE A HEIGHT OF 12".
6. ALL RETURN PIPE SLOPES MINIMUM OF 1/4 IN/FT 2012 IRC.
7. ALL RETURN PIPE TO BE 3" DIAMETER PVC PIPE UNLESS OTHERWISE SPECIFIED.

FRENCH DRAIN

1 1/2" DIAMETER PVC

FLEX PIPE

1 1/2" DIAMETER PVC

FLEX PIPE

1/2" DIAMETER PVC

SANITARY VENT

RETURN TANK

DOMESTIC RETURN CORE

DOMESTIC RETURN CORE

DOMESTIC RETURN CORE

1. All piping will be sized and installed based on manufacturer’s instructions.
2. Water will be the solar thermal fluid during the competition.
3. The hot water tank and solar water pump will be installed based on manufacturer’s instructions.
4. The phase change material tank will be installed based on manufacturer’s instructions.
5. The Sundrm panels will be installed based on manufacturer’s instructions.
GENERAL SHEET NOTES

1. THE WATER FOR THE FIRE SUPPRESSION SYSTEM AND THE SUPPLY WATER WILL BE CONTAINED IN THE SUPPLY WATER TANK.
2. 950 GALLONS ARE TO BE SUPPLIED TO THE SUPPLY WATER BLADDER. THE WATER SUPPLY BLADDER IS TO BE FILLED FROM BEGINNING TO END OF COMPETITION.
3. THE WATER BLADDER WILL BE SUPPORTED BY A MAN DURING FILL AND REMOVAL.
4. THE WATER BLADDER REMOVABLE TOPS WILL HAVE A DIAMETER OF AT LEAST 6" AND AT LEAST 12" OF CLEARANCE ABOVE.
5. THE SUPPLY AND RETURN WATER BLADDER ARE TEMPORARY AND FOR COMPETITION PURPOSES ONLY.
6. THE SUPPLY AND RETURN WATER BLADDER WILL HAVE AN HEIGHT OF 12".
7. THE HOT WATER TANK AND THE PHASE CHANGE MATERIAL TANK WILL BE INSTALLED BASED ON MANUFACTURER'S INSTRUCTIONS.
8. THE CIRCULATOR PUMP WILL BE INSTALLED BASED ON MANUFACTURER'S INSTRUCTIONS.
9. MAIN WATER SUPPLY TO BE 3/4" BLUE PEX PIPE.
10. ALL COLD WATER SUPPLY TO BE 1/2" BLUE PEX PIPING. ALL HOT WATER SUPPLY TO BE 1/2" RED PEX PIPING.
11. DOMESTIC WATER IS NOT TO BE SUPPLIED TO THE TOILET DURING THE COMPETITION.
GENERAL SHEET NOTES

1. 950 GALLONS ARE TO BE REMOVED FROM THE RETURN WATER BLADDER.
2. EACH BLADDER WILL HAVE REMOVABLE TOPS WITH A DIAMETER OF AT LEAST 4" AND AT LEAST 12" OF CLEARANCE ABOVE.
3. THE WATER BLADDER FILL CAP WILL BE SUPPORTED BY HUMAN DURING FILL AND REMOVAL.
4. THE SUPPLY AND RETURN WATER BLADDER ARE TEMPORARY AND FOR COMPETITION PURPOSES ONLY.
5. THE SUPPLY AND RETURN BLADDER WILL HAVE AN HEIGHT OF 12".
6. ALL RETURN PIPE SLOPES MINIMUM OF 1/4 IN/FT 2012 IRC.
7. ALL RETURN PIPE TO BE 3" DIAMETER PVC PIPING UNLESS OTHERWISE SPECIFIED.

SECTION DETAIL-BATHROOM WATER RETURN

SECTION DETAIL-KITCHEN WATER RETURN

AAV VENT
FLEX PIPE
FLEX PIPE
GENERAL SHEET NOTES:

1. The water for the fire suppression system and domestic water will be contained in the supply water tank.
2. 950 gallons are to be supplied to the supply water bladder. Water will not be removed from the return water bladder.
3. The return water bladder will be filled from beginning to end of competition.
4. The water bladder fill cap will be supported by a man during fill and drain.
5. Each bladder will have removable tops with a diameter of at least 4" and at least 12" of clearance above.
6. The supply and return water bladders are temporary and for competition purposes only.
7. The supply and return bladder will have an height of 12".
8. Access panels consist of removable section of the decking which are accessible during the entire competition.

1/2" = 1'-0"
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**SCHEDULE**

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**GAUGES**

| PS1 | SHARKBITE PRESSURE GAUGE WITH 3/4" NPT | 4 | CASH/ACME | P-72222 |
| PS2 | 3/4" PEX | 3/4" PEX | 3/4" PEX | 3/4" PEX |

**CONSTRUCTION DOCUMENTS**

[Image links to various construction documents and specifications related to the project.]
GENERAL SHEET NOTES

1. DIAGRAMS NOT DRAWN TO SCALE.
2. WATER WILL BE THE SOLAR THERMAL FLUID DURING THE COMPETITION.
3. SCENARIO 5 CAN OCCUR SIMULTANEOUSLY WITH SCENARIOS 1-4.
4. IMAGES ARE NOT DRAWN TO SCALE.

OVERALL SYSTEM

SCENARIO 1

SCENARIO 2

SCENARIO 4

SCENARIO 5

HOT WATER TANK

PHASE CHANGE MATERIAL TANK

RADIANT FLOOR HEATING SYSTEM

SOLAR THERMAL CORE

LEGEND

AUTOMATIC VALVE

CIRCULATOR PUMP

HEAT EXCHANGER

PHASE CHANGE MATERIAL TANK

RADIANT FLOOR HEATING SYSTEM

HOT WATER TANK

PRODUCED BY AN AUTODESK STUDENT PRODUCT
GENERAL SHEET NOTES

1. ALL PIPING WILL BE INSTALLED BASED ON MANUFACTURER INSTRUCTIONS AND BE 3/4" DIAMETER.
2. WATER WILL BE THE SOLAR THERMAL FLUID DURING THE COMPETITION.
3. THE HOT WATER TANK AND SOLAR WATER PUMP WILL BE INSTALLED BASED ON MANUFACTURER INSTRUCTIONS.
4. THE PHASE CHANGE MATERIAL TANK WILL BE INSTALLED BASED ON MANUFACTURER INSTRUCTIONS.
5. THE SUNDRUM PANELS WILL BE INSTALLED BASED ON MANUFACTURER INSTRUCTIONS.
6. PHASE CHANGE MATERIAL WILL BE INSTALLED BASED ON MANUFACTURER INSTRUCTIONS.

LEGEND

1.) TO PCM TANK BOTTOM COIL
2.) FROM PCM TANK BOTTOM COIL
3.) TO WST 50 COIL
4.) FROM WST 50 COIL
5.) FROM BOSCH SBU
6.) TO PUMP/PCM TANK
7.) TO BOSCH SBU
8.) COLD WATER INLET/ FROM PCM TANK
9.) DOMESTIC HOT WATER OUTLET
10.) FROM WST 50 COIL
11.) TO PCM TANK TOP COIL
12.) FROM RADIANT FLOOR PUMP
13.) TO BOSCH SBU
14.) FROM PCM TANK
15.) FROM PCM TANK DOMESTIC COLD WATER
16.) TO PCM TANK
17.) TO RADIANT FLOOR PUMP
18.) FROM PCM TANK
19.) TO PCM TANK

INTEGRATED SOLAR THERMAL SYSTEM SCHEMATIC
GENERAL SHEET NOTES

1. The water for the fire suppression system and the supply water will be contained in the supply water tank. 690 gallons are to be supplied to the supply water bladder.

2. The water supply bladder is to be filled from beginning to end of competition.

3. The water bladder fill cap will be supported by a man during fill and removal.

4. Each bladder will have removable tops with a diameter of at least 4" and at least 12" of clearance above.

5. The supply and return water bladders are temporary and for competition purposes only.

6. The water bladder and return water tank will be installed based on manufactures instructions.

7. The hot water tank will be installed based on manufactures instructions.

8. Main water supply to be 3/4" blue PEX pipe.

9. All cold water supply to be 1/2" blue PEX pipe. All hot water supply to be 1/2" red PEX pipe. Domestic water supply to be supplied to toilet during the competition.
GENERAL SHEET NOTES

1. 950 gallons are to be removed from the return water bladder.
2. Each bladder will have removable tops with a diameter of at least 4" and at least 12" of clearance above.
3. The water bladder fill cap will be supported by human during fill and removed.
4. The supply and return water bladder are temporary and for competition purposes only.
5. The supply and return bladder will have a height of 12".
6. All return pipe slopes minimum of 1/4" per ft 2012 IRC.
7. All return pipe to be 3" diameter PVC piping unless otherwise specified.

DOMESTIC RETURN ISOMETRIC: NORTHWEST VIEW

DOMESTIC RETURN ISOMETRIC: NORTHEAST VIEW
### Electrical Symbols

<table>
<thead>
<tr>
<th>MARK</th>
<th>Description</th>
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<tbody>
<tr>
<td>D</td>
<td>Duplex Receptacle</td>
</tr>
<tr>
<td>G</td>
<td>GFCI Duplex Receptacle</td>
</tr>
<tr>
<td>R</td>
<td>Quadruplex Receptacle</td>
</tr>
<tr>
<td>G</td>
<td>GFCI Quadruplex Receptacle</td>
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<td>22</td>
<td>220V Receptacle</td>
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<tr>
<td>S</td>
<td>Single Pole Switch</td>
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<tr>
<td>S 3</td>
<td>3-Way Switch</td>
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<tr>
<td>S 5</td>
<td>Disconnect Switch</td>
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<td>0</td>
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<tr>
<td>R</td>
<td>Recessed Light</td>
</tr>
<tr>
<td>W</td>
<td>Wall Washing Light</td>
</tr>
<tr>
<td>T</td>
<td>Tape Light</td>
</tr>
<tr>
<td>W</td>
<td>Wall Sconce</td>
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<td>AC</td>
<td>AC Hot</td>
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<td>AC</td>
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<tr>
<td>DC</td>
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<td>DC</td>
<td>DC Negative</td>
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<tr>
<td>G</td>
<td>Ground</td>
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<tr>
<td>C</td>
<td>Clearance Line</td>
</tr>
<tr>
<td>C</td>
<td>Single Line Connection</td>
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### Electrical Notes

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<thead>
<tr>
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<tr>
<td>01</td>
<td>Combiner Box</td>
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<tr>
<td>02</td>
<td>Data Logger Enclosure</td>
</tr>
<tr>
<td>03</td>
<td>Inverter</td>
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<tr>
<td>04</td>
<td>Module Maximizer</td>
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<tr>
<td>05</td>
<td>Maximizer Management Unit</td>
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<tr>
<td>06</td>
<td>Main Service Panel</td>
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<tr>
<td>07</td>
<td>No Receptacle Wired Using Junction Box</td>
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<tr>
<td>08</td>
<td>Organizer Enclosure for Monitoring Equipment</td>
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<tr>
<td>09</td>
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<td>Dual Maximizer</td>
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<td>Solar Module C Si M 60</td>
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<td>23</td>
<td>Combiner Box</td>
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<td>24</td>
<td>HVAC Disconnect</td>
</tr>
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<td>25</td>
<td>Gateway</td>
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<td>26</td>
<td>Solar Mount Evolution</td>
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<td>Solar Panel</td>
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<td>28</td>
<td>Air Conditioning Disconnect</td>
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<td>29</td>
<td>Heating, Ventilation, and Air Conditioning Disconnect</td>
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<tr>
<td>30</td>
<td>6&quot; Round Recessed Light</td>
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<tr>
<td>31</td>
<td>7&quot; Round Recessed Light</td>
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<tr>
<td>32</td>
<td>Wall Washing Light</td>
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<td>33</td>
<td>Wall Sconce</td>
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<td>34</td>
<td>Tape Light</td>
</tr>
<tr>
<td>35</td>
<td>Ventilation Fan</td>
</tr>
</tbody>
</table>
1. All receptacles installed shall be tamper resistant as per NEC 406.12. Refer to Spec 26 for product information.
2. All outdoor receptacles shall be listed as GFCI, weather resistant, and shall have a cover as per NEC 406.9.
3. All receptacles that require AFCI protection shall be field verified in order to comply with NEC 210.12. Refer to sheet E-603 for specific circuits.
PHOTOVOLTAIC SCHEDULE

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<thead>
<tr>
<th>MARK</th>
<th>REFERENCE NO</th>
<th>SYSTEM NAME</th>
<th>QTY</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
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<td>51 05 00</td>
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<td>BOSCH</td>
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<td>51 41 13</td>
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### MAIN SERVICE PANEL - MSP - RATED AT 200A WITH 150A MAIN BREAKER

<table>
<thead>
<tr>
<th>SLOT #</th>
<th>LOAD DETAIL</th>
<th>C/B</th>
<th>AWG</th>
<th>SLOT #</th>
<th>LOAD DETAIL</th>
<th>C/B</th>
<th>AWG</th>
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<tbody>
<tr>
<td>1</td>
<td>LIVING ROOM/HALLWAY</td>
<td>1P/20A*</td>
<td>12</td>
<td>2</td>
<td>BEDROOM</td>
<td>1P/20A*</td>
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<tr>
<td>3</td>
<td>REFRIGERATOR**</td>
<td>1P/15A</td>
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<td>4</td>
<td>VENTILATION HOOD**</td>
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<tr>
<td>5</td>
<td>COUNTER TOP LEFT**</td>
<td>1P/15A</td>
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<td>6</td>
<td>COUNTER TOP RIGHT**</td>
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<td>7</td>
<td>NORTH MECHANICAL ROOM**</td>
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<td>8</td>
<td>SOUTH MECHANICAL ROOM**</td>
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<td>9</td>
<td>ISLAND/DINING ROOM**</td>
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<td>10</td>
<td>DISHWASHER**</td>
<td>1P/15A</td>
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<td>REAR OUTDOOR RECEPTACLES**</td>
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<td>12</td>
<td>LAUNDRY**</td>
<td>1P/15A</td>
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<td>13</td>
<td>BATHROOM RECEPTACLE**</td>
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<td>14</td>
<td>CIRCULATOR PUMP**</td>
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<td>LIGHTING 2**</td>
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<td>22</td>
<td>LIGHTING 5**</td>
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<td>WALL OVEN</td>
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<td>24</td>
<td>HVAC OUTDOOR UNIT</td>
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<tr>
<td>25</td>
<td>INVERTER A</td>
<td>2P/40A</td>
<td>12</td>
<td>26</td>
<td>COOKTOP</td>
<td>2P/40A</td>
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<tr>
<td>27</td>
<td>INVERTER B</td>
<td>2P/40A</td>
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<td>28</td>
<td>COOKTOP</td>
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<td>FIRE ALARM</td>
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<td>30</td>
<td>COOKTOP</td>
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**ARC FAULT CIRCUIT INTERRUPTER (AFCI)**

**GROUND FAULT CIRCUIT INTERRUPTER (GFCI)**

### SERVICE FEEDER CALCULATIONS

<table>
<thead>
<tr>
<th>LOAD DETAIL</th>
<th>SERVICE FEEDER CALCULATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL LIGHTING AND RECEPTACLES (NEC 220.14(B)(1)(c))</td>
<td>840 WATTS X 0.85VA/840 WATTS</td>
</tr>
<tr>
<td>SMALL APPLIANCE CIRCUITS (NEC 220.15(A)(a))</td>
<td>2X 1500 VA</td>
</tr>
<tr>
<td>LAUNDRY (NEC 220.19(B))</td>
<td>3 CIRCUIT X 1000 VA/CIRCUIT</td>
</tr>
<tr>
<td>SUBTOTAL (NEC 220.12(B), TABLE 220.12(A))</td>
<td>10000 VA AT 100% - 6000 VA AT 67%</td>
</tr>
<tr>
<td>COOKING</td>
<td>1200 VA</td>
</tr>
<tr>
<td>WALL OVEN</td>
<td>2000 VA AT 100%</td>
</tr>
<tr>
<td>SUBTOTAL (NEC TABLE 225.5, NOTE 1, COLUMN II)</td>
<td>3400 VA</td>
</tr>
</tbody>
</table>

### FIXED APPLIANCES

- WATER HEATER (NEC 220.51) 4500 WATTS AT 75% 3750 VA
- DISHWASHER (NEC 220.55) 1000 WATTS AT 75% 775 VA
- RANGE HOOD (NEC 220.53) 200 WATTS AT 75% 200 VA
- VENTILATION FAN (NEC 220.53) 120 WATTS AT 75% 120 VA
- SINKET FLOOR PUMP (NEC 410.24) 5/16" 75 WATTS AT 75% 75 VA
- CIRCULATOR PUMP (NEC 680.36) 15 WATTS AT 100% 15 VA
- DE-CIRCULATOR PUMP (NEC 680.26) 75 VA
- RP PUMP STATION (NEC 410.24) 255 WATTS AT 100% 255 VA
- PUMP STATION (NEC 680.24) 3 WATTS AT 100% 3 VA
- DRYER VENT (NEC 680.24) 3 WATTS AT 100% 3 VA
- SOLAR CONTROL (NEC 680.24) 120 WATTS AT 100% 120 VA
| SUBTOTAL | 1930 VA |

### SWIMMING AND DRYER (NEC 220.56) ANNEX D2 (E)

- 200W + 2000 VA + 5000 VA AT 100% 1900 VA
- 2000 VA AT 100% 2000 VA
- 300VA AT 100% 300 VA
- TOTAL (NEC ANNEX D2 (E)) 20VA

### TOTAL CURRENT

307 A

### MARINE SERVICE PANEL BRIDGE

790 A

### NEUTRAL CONDUCTOR

- GENERAL LIGHTING AND RECEPTACLES (NEC 220.61) 460 V/3 PHASE AT 100% 460 VA
- COOKING (NEC 220.61) 2000 WATTS AT 100% 1901 VA
- FIXED APPLIANCES (NEC 220.61) 3996 WATTS AT 100% 3996 VA
- SWIMMING AND DRYER (NEC 220.61) 2000 VA AT 100% 2000 VA
- TOTAL 19954 VA
- TOTAL CURRENT 80 A

### SCHEDULES

- TEAM TIDEWATER VIRGINIA
- Hamptom University Department of Architecture
- Old Dominion University School of Engineering

- Mark Date: Description
- Production by an Autodesk Student Product

- E-603

- U.S. Department of Energy Solar Decathlon 2013
- Website: www.solardecathlon.gov
Step 1: Foundation is set.
Tool area is defined.

Step 2: House module 1 is set.

Step 3: House module 2 is set.

Step 4: House module 3 is set.
Step 4: House module 4 is set.

Step 5: Deck modules are set.

Deck modules will be put into place with a forklift.

Step 6: Ramp modules are set.

Temporary loading and unloading

Travel lane, one-way, no parking, no loading or unloading

Note: Departure sequence is the reverse of the arrival sequence.